



Navigating the Ethics of AI: Building a Responsible Future

Executive Summary

This co-written article with ChatGPT explores the critical subject of ethics in the realm of AI. Acknowledging the challenges of defining universal ethical principles, the article emphasizes the importance of integrating widely recognized frameworks to guide the development of ethical AI systems. Key principles such as fairness, transparency, accountability, privacy, and human-

centered values are discussed, as they serve as essential foundations for ethical AI.

The article underlines the vital importance of constructing ethical AI systems, underscoring how AI's influence on human rights, privacy, and safety demands careful and responsible attention. It explores the role of trust, legal and regulatory compliance, security risks, and efforts to mitigate bias and discrimination in AI systems, all crucial elements in ensuring ethical implementation.

To assess whether AI, such as ChatGPT, adheres to ethical principles, the author engaged in a thoughtful exchange of questions and answers with a generative AI. She observed the efforts of AI developers to create fair, transparent, inclusive, and reliable AI through adherence to best practices and guidelines. Nonetheless, the article reminds readers to exercise critical thinking and consider potential biases when using AI systems.

The article addresses the risks and opportunities of ethical AI, highlighting instances of biased AI and the importance of prioritizing data privacy. It also showcases examples of inclusive AI systems, demonstrating how AI can foster equality and accessibility.

In conclusion, the article emphasizes the necessity of ethical AI in promoting trust, adoption, and positive impact on individuals and society. It calls for privacy-respecting design and responsible AI practices. The interaction with AI reflects a promising step toward co-writing with AI, and the author expresses gratitude for the readers' engagement and invites feedback for future follow-up articles on best practices and AI system auditing.

#AIethics #ResponsibleAI #InclusiveAI

1. Introduction

Writing about ethical principles is challenging in itself, writing about ethics in AI even more. Firstly, the Western view of ethics may differ from what is ethical from anywhere else in the world. Secondly, there is no one definitive set of principles that must be applied to build an ethical AI system. However, there are several widely recognized frameworks and sets of principles that provide guidance on building ethical AI systems.

For example, the IEEE Global Initiative for Ethical Considerations in AI and Autonomous Systems (1) has developed a set of Ethically Aligned Design principles. Those principles include a broad set of guidelines that cover a range of topics, including transparency, accountability, and social impact. Similarly, the European Union's High-Level Expert Group on AI (2) or the Partnership on AI (3) have developed a set of key

requirements for trustworthy AI systems, including human oversight, transparency, and accountability. Other organizations, such as the World Economic Forum – WEF (4) and the International Telecommunications Union – ITU (5) have also developed their own platforms to promote ethical AI in many ways.

Overall, there are many different sets of principles, frameworks and platforms that can be used to build an ethical AI system, but the specific principles that are relevant will depend on the context in which the AI system is being developed and used. Even if today, the number of principles depends on the framework being used, most frameworks generally include common principles, such as:

1. **Fairness:** AI systems should be designed to be fair and unbiased, and should not discriminate against individuals or groups based on factors such as race, gender, or age.
2. **Accountability and Transparency:** AI systems should be transparent and explainable, and should be designed to provide clear and interpretable explanations for their decisions as well as be auditable.
3. **Privacy:** AI systems should be designed to protect the privacy of individuals and should comply with relevant data protection regulations.
4. **Safety and security:** AI systems should be designed to be safe and secure, and should be subject to appropriate testing and validation to ensure that they do not pose a threat to users or to society as a whole.
5. **Human-centered values:** AI systems should be designed to reflect human-centered values, including respect for human dignity, privacy, and autonomy.

The principles listed above are generally considered to be core principles that should be applied in the design and development of any ethical AI model.

AI leaders, developers and users must be aware that computing professionals' actions are changing our world. To act responsibly, computing professionals should reflect upon the wider impacts of their work, consistently supporting the public good. The Association for Computing Machinery – ACM Code of Ethics and Professional Conduct ("the Code") (6) is designed to inspire and guide the ethical conduct of all computing professionals, including current and aspiring practitioners, instructors, students, influencers, and anyone who uses computing technology in an impactful way.

Note that the Western view is taken in this article because 1) I am European and 2) ChatGPT has been trained on Western data from the internet. It would be highly interesting to reproduce this experience with a generative AI trained a more diverse set of data.



Note that the questions were asked to ChatGPT 3.5 version in February – March 2023 and the images generated with [Craiyon](#) (version 3) in August.

2. Why Does It Matter?

Building ethical AI systems is important because AI has the potential to impact human rights, dignity, privacy, and safety, either through errors, biases, or intentional misuse. Taking ethical considerations into account helps mitigate these risks, prevent harm and ensure that AI is developed and used in a way that that benefits society as a whole.

- **TRUST:** Many AI systems rely on personal data to make personalized recommendations and decisions. If individuals do not trust that their data are being used responsibly, appropriately and kept private, they may be less likely to share it, which could limit the accuracy and effectiveness of the AI system.

Furthermore when we understand how an AI system makes decisions, our confidence level increases and we can improve the way we interact with it.

- **LEGAL AND REGULATORY COMPLIANCE** : In many jurisdictions, privacy laws require organizations to protect personal data such as the General Data Protection Regulation (GDPR) in the European Union (7) or the California Consumer Privacy Act (CCPA) in the United States (8). They guarantee to different extent that data are not used in ways that are unauthorized or unexpected. Building ethical AI helps organizations comply with these regulations, respect their users, avoid financial penalties and damage to reputation.
- **SECURITY RISKS**: Personal data is a valuable asset that can be targeted by cybercriminals. Personal data is often sensitive and can be used for malicious purposes if it falls into the wrong hands. Protecting privacy can help prevent data breaches and other security incidents.
- **BIAS AND DISCRIMINATION**: Building inclusive AI is crucial for a fair society that values diverse perspectives and needs. AI systems that use personal data to make decisions, such as those related to employment or financial services, can reinforce discrimination against certain groups if the data are biased or incomplete. On the opposite, inclusive AI can reduce bias, mitigate risks of discrimination and improve outcomes for everyone with stronger empowerment, accessibility or personalization.

However ensuring that a dataset is inclusive can be difficult for several reasons:

1. **Bias in data collection**: the data used to train AI models is often collected by humans, and human biases and prejudices can influence what data is collected and how it is labeled. For example, a dataset used to train a facial recognition algorithm may be biased towards certain ethnicities or genders, or simply to people wearing glasses!
2. **Lack of diversity in data sources**: in some cases, data may not be available for certain groups or may be more difficult to collect. For example, if a dataset is intended to represent a particular population, but the data sources only include data from certain areas or social networks that are not representative of the entire population, the dataset is incomplete.
3. **Complexity of identifying bias**: Identifying and removing bias from datasets can be challenging, especially when the biases are not immediately apparent or are embedded in the data in complex ways. It may require significant time and resources to conduct a thorough analysis of the data to identify and address biases.
4. **Inadequate testing**: Even if the dataset is diverse and inclusive, it may not be sufficient to guarantee that the AI system will behave fairly and inclusively in all situations. AI systems are complex and may generate unexpected results or reinforce biases in unexpected ways, making it necessary to test them extensively under different conditions and scenarios.
5. **Evolving social norms**: Social norms and expectations change over time, making it difficult to guarantee that a dataset will remain inclusive and relevant over time. For example, a dataset that is inclusive today may not be inclusive tomorrow if social attitudes towards certain groups change or new groups emerge that were not previously represented in the data.

3. Is ChatGPT an Ethical AI System?

It is always very abstract to think about what is ethics. Therefore I decided to go for an example of an AI system and ChatGPT itself was the obvious candidate. This led me to ask directly ChatGPT a set of questions in an attempt to identify if it is a responsible / transparent / inclusive / fair / reliable AI. Some of my prompts focused on data privacy, which is always a critical feature.

The table below highlights the key extracts of **ChatGPT answers** to my prompts:

| Principle | How ChatGPT behaves | How this is achieved |
|----------------------|--|--|
| FAIRNESS | <p>As an AI language model, I do not have emotions or desires.</p> <p>I strive to be as fair as possible and provide helpful and informative responses to all users. However, I have been trained on a large dataset of text, which means that my responses are only as fair and unbiased as the data I was trained on.</p> <p>There may be biases in the dataset that could lead to biased or unfair responses. For example, if the dataset I was trained on has a lack of diversity or inclusion, this could lead to biased or unfair responses.</p> | <p>My development team at OpenAI is committed to building and maintaining a fair, responsible, and ethical AI system, that is transparent, unbiased, and secure. They follow best practices and guidelines for ethical AI development, such as the IEEE Global Initiative for Ethical Considerations in Artificial Intelligence and Autonomous Systems and the Partnership on AI.</p> |
| TRANSPARENCY | <p>As an AI language model, I have been designed to be as transparent as possible. I am trained on a large dataset of text and uses complex algorithms to generate responses to user inputs.</p> | <p>The OpenAI team has taken several steps to ensure that ChatGPT is transparent and explainable.</p> <p>ChatGPT has been designed to provide explanations for some of its responses, which can help users to understand how the model is making decisions.</p> <p>The OpenAI team also provides documentation that explains the design of the model, including the algorithms used and the data sources.</p> |
| INCLUSIVENESS | <p>As an AI language model, I am designed to be neutral and inclusive in my responses. I strive to provide accurate and informative answers to all users regardless of their background or identity.</p> <p>I have been trained on a vast amount of text data from diverse sources, and I am designed to generate responses that reflect the diversity of perspectives and experiences contained within that data. However, like any AI system, my responses are only as good as the data I have been trained on, and I may unintentionally reproduce biases or inaccuracies that exist in that data.</p> | <p>I am designed to prioritize inclusive and non-discriminatory language in my responses.</p> <p>I have been programmed to recognize and avoid certain types of biased language.</p> <p>I am constantly being updated and improved to reflect the latest advances in AI research and to address any issues or concerns that arise.</p> |

| | | |
|---------------------|---|---|
| RELIABILITY | As an AI language model, I am designed and trained to be as reliable and accurate as possible within the scope of my training data and knowledge cutoff date of 2021 . Like any AI system, I am not perfect and may make mistakes or provide inaccurate responses in certain situations, especially if the input data is noisy or ambiguous. Errors and inaccurate answers could occur due to a variety of factors, such as limitations in my training data, biases in the data, or errors in my algorithms. | ChatGPT is designed to provide clear and transparent responses, and to provide confidence scores that indicate the level of certainty it has in its responses. ChatGPT is subject to ongoing testing and validation to ensure that it remains reliable and up-to-date with the latest advances in AI research. |
| DATA PRIVACY | As an AI language model, I am designed to be a secure and private system that protects the data privacy of its users. | When you interact with ChatGPT, your conversations are kept confidential and are not shared with third parties . Additionally, your personal information is not stored or used for any other purposes outside of providing you with a response to your queries. |



FOOD FOR THOUGHT: *It is super interesting that part of the answers to my questions contained very important attention points, highlighting often and in many ways the importance of critical thinking:*

- “It is important to remember that AI is a tool that can be used to support and enhance human decision-making, but **it is not a substitute for human judgement or critical thinking**. It is important for people to be aware of the limitations and potential biases of AI systems and to approach them with a critical eye.”
- “It is important to note that as an AI language model, I have **limitations** and **biases**. While I am trained on a large dataset of text, I may not have access to all information or perspectives on a given topic, and my responses may not always be perfect or completely accurate. When making decisions based on the information I provide, it is important to use **critical thinking skills** and **to seek out multiple sources of information**.”
- “I am a machine learning model that is only as inclusive as the data that was used to train me. **If the training data is biased or lacks diversity, my responses may reflect that bias or lack of diversity.**”
- “It is important to **continually evaluate and improve the training data used to train AI models** to ensure that they are truly inclusive. **No AI system is perfect** and there is always the possibility that biases can inadvertently be introduced, either through the data used to train the model or through the way users interact with the system. Therefore, it is important to continually monitor and test AI systems to ensure that they are as inclusive and unbiased as possible.”
- “There may still be limitations to the transparency of ChatGPT, as with any AI system. For example, it may be difficult for users to understand the entire decision-making process of the model, as it involves complex calculations and a large amount of data. Nonetheless, the OpenAI team is working to improve the transparency and explainability of ChatGPT and other AI systems.”
- It is worth noting that while ChatGPT is designed with data privacy in mind, it is still important to **exercise caution when sharing sensitive information or personal data with any online service**, including ChatGPT. It is always a good idea to read the privacy policy and terms of service of any platform or service you use, and to **ensure that you are comfortable with the information that you are sharing**.

4. What are the Risks and Opportunities?

Fair AI is an important goal that many researchers and developers are working towards because there have been numerous examples of unfair AI in various applications, some of which have received significant media attention. For this part, I asked ChatGPT to give examples of bias and unfairness and amongst many answers, here is my selection:

1. **Biased hiring algorithms:** Several companies have developed AI-powered hiring tools that are designed to screen resumes and identify top candidates. However, some of these tools have been found to be biased against women and minorities. For example, Amazon developed a recruiting tool that was later abandoned because it was found to be biased against women.
2. **Facial recognition systems that are biased against people of colour:** There have been multiple studies that have shown that many facial recognition systems have higher error rates when it comes to identifying people of colour, particularly women. For example, a study by the National Institute of Standards and Technology found that some facial recognition systems had 10 to 100 times higher error rates for people of colour compared to white individuals.
3. **Unfair sentencing algorithms:** Some criminal justice systems use algorithms to predict the likelihood that a defendant will reoffend or to determine their risk level. However, some of these algorithms have been found to be biased against people of colour. For example, one study found that an algorithm used in the state of Florida was twice as likely to falsely flag black defendants as high risk compared to white defendants.
4. **Gender-biased chatbots:** Some chatbots that are designed to interact with customers have been found to be biased against women. For example, a study of several popular chatbots found that they were more likely to respond to male users with helpful or informative responses, while responding to female users with more patronizing or unhelpful responses.

These are just a few examples of the risks the society have to face when using unfair AI systems. Therefore it is important to be aware of these potential issues and take steps to mitigate them during the design and implementation of AI systems. I then asked ChatGPT how ethical principles can contribute to build better AI:

- **Explainable AI in healthcare:** In healthcare, AI models are being developed to help diagnose and treat diseases. However, it is important that these models are transparent and explainable so that doctors and patients can understand how decisions are being made. For example, the IBM Watson for Oncology system provides an explanation for each recommendation it makes, allowing doctors to understand the reasoning behind the system's recommendations.
- **Reliable AI:**
 1. **Email spam filters** use machine learning algorithms to automatically classify incoming emails as either legitimate or spam. These systems are reliable because they have been trained on large datasets of labelled email messages and can accurately identify spam messages with a low false positive rate.
 2. **Voice assistants:** Voice assistants like Amazon's Alexa and Apple's Siri use natural language processing algorithms to interpret user requests and provide relevant responses. These



systems are reliable because they can accurately understand and respond to a wide range of user inputs, with a high degree of accuracy and consistency.

3. Autonomous vehicles: Autonomous vehicles use AI algorithms to analyze sensor data and make decisions about how to operate the vehicle safely and efficiently. These systems are reliable because they have been extensively tested and validated in a range of real-world conditions, and are designed to minimize the risk of accidents or other safety incidents.

At this point, and although I own a very smart electric car since many years, I asked ChatGPT:

“Are you sure Autonomous vehicles can be classified as reliable AI?”



While autonomous vehicles are still in the process of being developed and tested, there are certainly efforts underway to make them as reliable and safe as possible through the use of AI.

Autonomous vehicles rely on a wide range of sensors and machine learning algorithms to navigate roads, detect objects and obstacles, and make driving decisions in real-time. To ensure the reliability of these systems, researchers and engineers are subjecting them to rigorous testing and validation, both in simulated environments and on real-world roads.

In addition, regulatory bodies are developing safety standards and guidelines for autonomous vehicles to ensure that they meet a minimum threshold of reliability and safety. For example, the US Department of Transportation's Federal Automated Vehicles Policy provides a framework for ensuring the safety and reliability of autonomous vehicles.

While there is still work to be done to improve the reliability of autonomous vehicles, they have the potential to revolutionize transportation and improve safety on the roads, and efforts are being made to ensure that they meet the highest standards of reliability and safety.

Back to the big privacy topic, I asked 3 times ChatGPT to come up with examples: *“Give me 2 examples of AI systems where sensitive data were disclosed”*. See the ones I selected for you (the list is quite big sadly):

1. The 2015 Ashley Madison data breach: Ashley Madison is a dating website for people who are married or in relationships, and its slogan was "Life is short. Have an affair." In 2015, a group of hackers breached the website's security and stole sensitive data, including names, addresses, phone numbers and credit card information, belonging to millions of users. The hackers threatened to release this data unless Ashley Madison shut down. The breach was due to a vulnerability in the website's AI-based security system, which the hackers were able to exploit to gain access to the data (9).
2. The 2018 Strava fitness app data privacy issue: Strava is a fitness app that allows users to track their workouts and share their activity with others. In 2018, it was discovered that the app's heat map feature, which showed the location and frequency of user activity, revealed the locations of several sensitive military bases around the world. This information had been inadvertently shared by Strava users who had used the app while on military bases, and the app's AI system had used this data to generate the heat map (910).
3. The 2020 Zoom data privacy issue: During the COVID-19 pandemic, many people turned to video conferencing platforms like Zoom to communicate and collaborate remotely. In 2020, the unprecedented growth in video conferencing usage came with multiple security and privacy threats. It was discovered that Zoom's AI-based virtual background feature was inadvertently leaking user data, including images and videos of people's homes, to other meeting participants. This was due to a

bug in the feature that allowed some users to bypass the virtual background settings and view the user's original background. Protecting users' privacy is not always at their own hands. Posting meeting images affects all participants, leading to easy collection of personal data including age, gender and linkage with participation in other meetings (9 11).

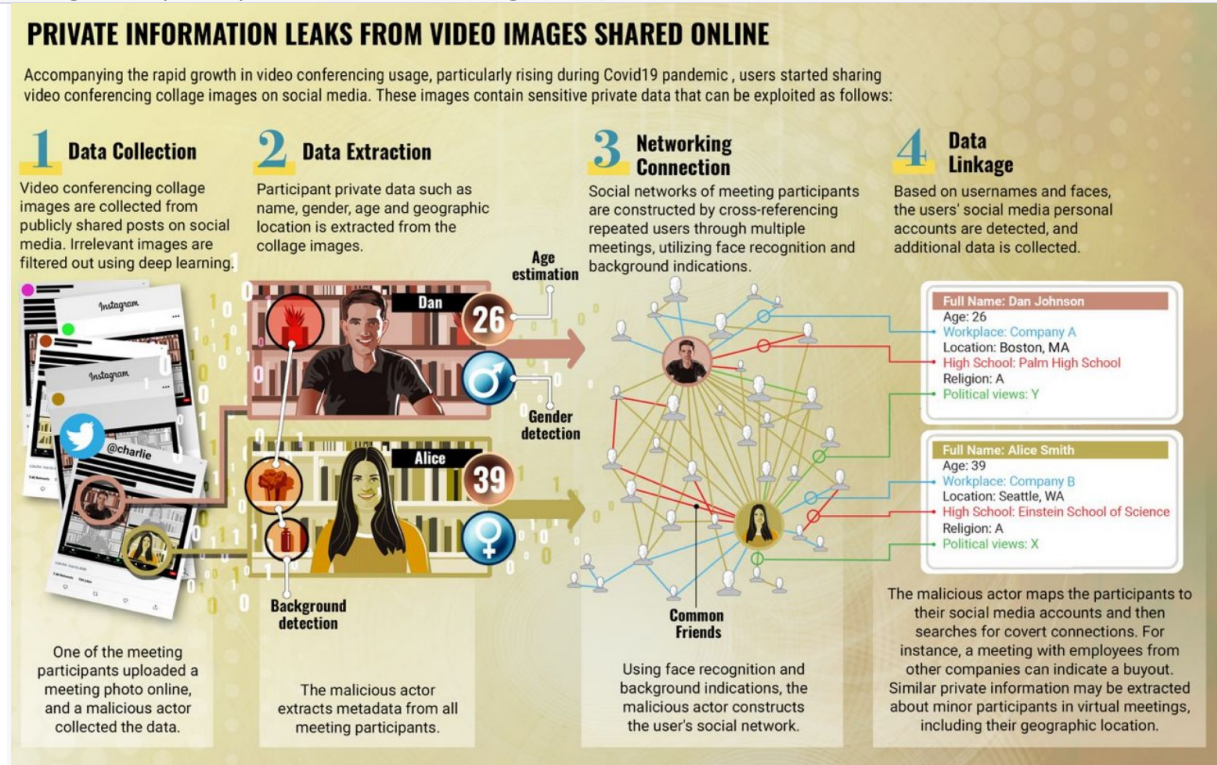


Figure – Private information leaks from video images shared online infographics (11)

KEY TAKEAWAY: It is important for users to be aware of which data they share on which platform.

It is important to ensure that AI systems are designed with data privacy and security in mind, and that they are thoroughly tested and audited to ensure that they are not vulnerable to data breaches or other privacy issues.

On a more positive note, I then asked ChatGPT to focus on inclusive AI: **“Can you give me 3 simple examples of inclusive AI systems”**

Certainly! Here are three simple examples of inclusive AI systems:

- 1. Text-to-speech technology:** Text-to-speech technology is an example of an inclusive AI system that can benefit individuals with visual impairments, as well as those who prefer auditory information. By converting written text into speech, text-to-speech technology enables individuals to access information in a way that is more accessible and inclusive.
- 2. Image recognition technology:** Image recognition technology can be used in an inclusive way to help individuals with visual impairments navigate their surroundings. For example, an app could use image recognition technology to identify objects in the environment and provide audio descriptions of those objects to the user, helping them to navigate and interact with the world around them.
- 3. Bias detection tools:** Bias detection tools are AI systems designed to identify and flag potential biases in data or decision-making processes. For example, a tool could be used to analyze hiring data and identify patterns of bias in the hiring process, such as a disproportionate number of applicants being rejected based on their gender or race. By identifying these biases, the tool can help organizations to take steps to address them and create more inclusive hiring practices.

To the simple but difficult question *“What else?”* ChatGPT answered the following *after a longer time response than usual*:

Here are a few more examples of inclusive AI systems:

4. **Language translation technology:** Language translation technology is an example of an inclusive AI system that helps to break down language barriers and enable communication across different languages and cultures. This can be especially important in situations where individuals may not have access to an interpreter or translator.
5. **Personalized medicine:** Personalized medicine is an example of an inclusive AI system that can help to address health disparities and ensure that individuals receive healthcare that is tailored to their individual needs and circumstances. By analyzing a patient's genetic information and other data, AI can help to identify treatments and therapies that are more likely to be effective for that individual.
6. **Sentiment analysis:** Sentiment analysis is an AI system that can be used to analyze social media posts, customer reviews, and other forms of online communication to identify patterns and trends in sentiment. This can help organizations to better understand the needs and preferences of their customers or constituents, and to develop more inclusive policies and practices.

These few examples illustrate how AI can be used to create inclusive systems that benefit individuals from diverse backgrounds and promote better equality and accessibility. They demonstrate how AI can be used in a variety of ways to address some of the social and health disparities that exist in our society.

By embracing inclusive AI, there is hope to create a world where technology is designed to serve everyone equally and where all individuals have access to the tools and opportunities they need to thrive.

5. Conclusion

Overall ethical AI is critical for building trust, promoting widespread adoption / customer loyalty / positive reputation, and realizing the potential benefits of AI in a sustainable manner for individuals and society as a whole and without causing harm or violating human rights.

Respecting privacy in every design step and data sets is a fundamental aspect of ethical AI. AI systems that violate individuals' privacy may erode trust in the organization that created them and damage relationships with customers, employees, and other stakeholders.

As I progressed in this new experience of co-writing a paper with one machine instead of a team human researchers, the way I formulated my prompts evolved and improved. Also I found myself engaged into a conversation with the machine as I would be with a colleague over a chat system. I ended up asking *“Is an AI more unfair than human beings?”* and here is ChatGPT answer:

“AI systems can exhibit unfairness, but it is not accurate to say that they are inherently more unfair than human beings. AI systems are programmed and designed by human beings and are only as unbiased and fair as the data and algorithms they are trained on. If the data and algorithms are biased, the AI system will be biased as well.

Human beings, on the other hand, have a wider range of potential biases and prejudices that can influence their decision-making, including conscious and unconscious biases based on factors such as race, gender, and other characteristics. These biases can lead to discrimination, unfairness, and inequitable treatment of certain individuals or groups.

That being said, AI systems can sometimes exacerbate or amplify human biases if they are trained on biased data or algorithms. Additionally, because AI systems are often used to make decisions at scale, the impacts of any unfairness or bias can be much more widespread than if an individual human were to make a biased decision.

Therefore, it is important to ensure that AI systems are designed and implemented in a way that promotes fairness, accountability, and transparency. This involves being aware of potential biases and taking steps to mitigate them during the design and implementation process. By doing so, we can help ensure that AI systems are used to promote equity and justice, rather than perpetuate existing biases and inequalities.”



Is not it a very wise answer?

If you managed to read until the end of this article, I would like to express you my sincere gratitude. I would highly appreciate if you could drop me a note on your thoughts at catherine@xpertia.ch

This would motivate me to work on a follow up article focusing on recognized best practices and ways to audit AI systems in order to assess their level of ethics, or another AI topic that matters to you.

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